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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,393	07/03/2003	Thomas E. Tarara	16614-030001	3183

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EXAMINER	
GOLLAMUDI, SHARMILA S	

ART UNIT	PAPER NUMBER
1616	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/612,393	TARARA ET AL.	
	Examiner	Art Unit	
	Sharmila S. Gollamudi	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-26* is/are pending in the application.

4a) Of the above claim(s) *1-23, 27-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt of Amendments and Remarks and Information Disclosure Statement filed on November 9, 2005 and the Information Disclosure Statement filed January 11, 2006 is acknowledged. Claims **24-26** are pending in this application. Claims 1-23 and 27-28 are withdrawn as being directed to a non-elected invention.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 1/11/06 has been considered by the examiner. The information disclosure statement filed 11/9/06 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. Note the IDS has been considered, only *certain* NPL documents that have not been submitted and thus have not been considered by the examiner.

Claim Rejections - 35 USC § 112

The rejection of claim 26 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is hereby withdrawn in view of the amendment of 11/9/05 removing the new matter.

Claim Rejections - 35 USC § 102

The rejection of claims 24-25 under 35 U.S.C. 102(b) as being anticipated by US patent 4,180,593 to Cohan et al is withdrawn in view of the amendments of 11/9/05.

The rejection of claims 24-25 under 35 U.S.C. 102(b) as being anticipated by US patent 2,797,201 to Veatch et al is withdrawn in view of the amendments of 11/9/05.

The rejection of claim 24 under 35 U.S.C. 102 (a) and (e) as being anticipated by US 5,605,673 to Schutt et al is withdrawn in view of the amendments of 11/9/05.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/18164 to Sutton et al in view of WO 96/15814 to Osborne et al.

Sutton teaches a process of preparing microcapsules comprising the steps of (i) spray-drying a solution or dispersion of a wall-forming material in order to obtain intermediate microcapsules and (ii) reducing the water-solubility of at least the outside of the intermediate

microcapsules. The microcapsules have walls of 40-500 nm thick and 1-50 microns diameter, which are useful in ultrasonic imaging. See abstract. The wall-forming material is proteinaceous, for example, it may be collagen, gelatin or (serum) albumin. See page 6, lines 9-16. The solution contains 0.1-50% and preferably 5-25% of the protein. See page 7, lines 18-23. Sutton teaches the preparation to be sprayed may contain substances other than the wall-forming material and solvent or carrier liquid. See page 7, lines 25-28.

Sutton teaches the microspheres are for imaging a wide variety of areas including:(1) the venous drainage system to the heart; (2) the myocardial tissue and perfusion characteristics during an exercise treadmill test or the like; and (3) myocardial tissue after an oral ingestion or intravenous injection of drugs designed to increase blood flow to the tissue. Additionally the microspheres may be useful in delineating changes in the myocardial tissue perfusion due lo interventions such as (1) coronary artery vein grafting; (2) coronary artery angioplasty (balloon dilation of a narrowed artery); (3) use of thrombolytic agents (such as streptokinase) to dissolve clots in coronary arteries; or (4) perfusion defects or changes due to a recent heart attack. See page 20.

Although Sutton teaches the use of additives in the spray drying solution, Sutton does not specify the use of a blowing agent or a bioactive agent as the additive in the spray drying solution.

Osborne teaches process for forming microcapsules comprising (i) providing a solution of a protein in an aqueous solvent and (ii) spraying the said solution into a gas such that the aqueous solvent evaporates, thereby forming hollow microcapsules, characterized in that the aqueous solution contains a liquid of greater volatility than water. The microcapsules are useful

for ultrasound imaging. See abstract. Suitable volatile liquids include ethanol (boiling point 78.3.degree. C.), methanol (b.p. 64.5.degree. C.), and acetone (b.p. 56.degree. C.). Note that these volatile liquid solvents reads on the "blowing agent" as defined by instant specification on page 27, lines10-12. See page 2, lines 5-10. Osborne teaches that including a volatile compound in the aqueous solution, which is spray-dried, microcapsules with improved properties can be formed, in higher yield, with narrower size distribution and thinner shells. See page 1, lines 24-26. The aqueous solution (feedstock) contains a wall-forming material, which is a water-soluble material, preferably a protein, including collagen, gelatin or (serum) albumin. See page 3, lines 3-15. Osborne teaches functional agents may be included in the solution, for example at 1.0-40.0% w/w, such as X-ray contrast agents or magnetic resonance imaging agents. See page 4, lines 15-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Sutton et al and Osborne et al and utilize a blowing agent, i.e. Osborne's volatile solvent, in Sutton's spray solution. One would have been motivated to do so since Osborne teaches the inclusion of a volatile compound in the aqueous solution ,which is spray-dried, provide microcapsules with improved properties that can be formed in higher yield, with narrower size distribution and thinner shells. Thus, a skilled artisan would have been motivated to further add a blowing agent in the spray dry solution to increase the number of hollow microcapsules yielded by the process and to produce microcapsules with improved properties. Further, a skilled artisan would have expected success by the instant combination since Sutton teaches the use of a solvent in the spray solution and both references are directed to a method of making hollow microcapsules that are used for ultrasound. Secondly, one would

have been motivated to add a bioactive agent such as a contrast agent or magnetic resonance imaging agent to the spray solution. A skilled artisan would have been motivated to do so since Sutton teaches the microcapsules are utilized for imaging areas in the body and the inclusion of a contrast agent or a magnetic resonance imaging agent would further enhance the imaging process.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/18164 to Sutton et al in view of WO 96/15814 to Osborne et al in further view of 2,797,201 to Veatch .

The teachings of Sutton et al and Osborne et al have been delineated above. Sutton teaches a method pf spray drying microcapsules for ultrasound that have a wall thickness of 45-500nm. Osborne teaches microcapsules with thin shells for ultrasound, which are made by spray drying using a volatile solvent, which is a blowing agent that evaporates.

The references do not teach the instantly claimed blowing agent.

Veatch et al disclose a spray drying process of producing hollow particles. The film forming material may be a natural material such as proteins, alginates, and celluloses. See column 3, lines 23-30. Veatch teaches a number of blowing agents are known in the art and the blowing agent may be a liquid or solid that volatizes or a substance that decomposes to form a gas. Veatch teaches suitable decomposable blowing agents are inorganic/organic salts such as ammonium carbonate. Veatch also teaches methyl ethyl ketone may be used instead of acetone as the blowing agent. See column 2, lines 1-55 and examples.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Sutton et al, Osborne et al, and Veatch and utilize the

instantly claimed blowing agent in the spray solution. One would have been motivated to substitute the prior art's blowing agent with the instantly claimed blowing agent with the expectation of similar results since Veatch teaches the method of spraying drying hollow particles may utilize a volatile type blowing agent (evaporation type) or a decomposing type blowing agents such as ammonium salts. Thus, it would have prima facie obvious, absent the showing of unexpected results of the instantly claimed blowing agents, to utilize any blowing agent known in the spray drying art, i.e. a decomposing type versus an evaporation type, to produce the hollow microspheres.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimm III (3,957,96) in view of US patent 4,180,593 to Cohan et al or vice-versa.

Grimm teaches dentrifice capsules that encapsulate flavoring material. See abstract. Grimm also teaches the encapsulation of fluorides, antibiotics, bactericides and colorants which can be released in active form. See column 2, lines 10-12. Grimm teaches that by regulating capsule wall thicknesses and sizes, an even release of bursts of the same or different flavors and colors may be effected during use of the dentifrices. Grimm teaches the capsules will be substantially spherical or of rounded cube shape with a diameter or equivalent diameter in the one micron to 2 millimeters range, preferably in the range of 50 microns to 1 millimeter and especially from 500 to 800 microns. The thicknesses of the walls of the capsules range from 0.1 micron (100 nm) to 1 millimeter. Grimm teaches the thickness prevents premature breaking of the capsules. See column 5, lines 1-10. Grimm teaches various encapsulation processes, of which aqueous phase separation, interfacial polymerization, multi-orifice rotating cylinder, fluidized bed spray coating, melt prilling in a fluidized bed, spray drying, etc. See column 4,

lines 3-10. The film forming material may be selected from gelatin and organic gums. See column 3, line 58.

Although Grimm suggests the capsules may be formed by spray drying, Grimm does not specify the method of forming the capsules, i.e. using a blowing agent.

Cohan et al teach a process of producing round spherical free flowing blown beads of controlled bulk density for food products. See abstract. The process includes providing a sprayable composition, which includes an edible film, a liquid, and a blowing agent (ammonium salts: carbonate and bicarbonate). The particles are spray-dried to produce the spherical beads. See examples, column 1, lines 50-60, and column 4. The blowing agent upon exposure to the elevated temperatures in the heated zone will form a gas in situ to expend the solution. Suitable film materials include carbohydrates such as the dextrins, starch, pectin, algin, methyl cellulose, carboxy methyl cellulose, carboxy methyl amylose, carboxy methyl amylopectin, dextrose, fructose, maltose, lactose, and dextrans, natural gums such as tragacanth, acacia, arabic, locust bean, caraya, and carragean. Cohan teaches the particles provide a low bulk density carrier and preferably are used to encapsulate a flavor such as coffee (note coffee contains caffeine which reads on the instant "bioactive agent), chocolate, and tea; colors; or sweetening agents. Suitable sweeteners include natural sweeteners such as fructose, sucrose, invert sugar, honey, polysaccarides, extracts from orange and grapefruit peels, and artificial sweeteners including cyclamates, saccharin, and aspartame. See column 2, lines 15-45.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Grimm and Cohan et al and utilize Cohan's process of spray drying to form the encapsulating capsules. One would have been motivated to do so with

the expectation of similar results since Grimm teaches any suitable process may be utilized to form the capsules including spray drying and Cohan demonstrates the state of the art at the time the invention was made wherein it is known to incorporate a blowing agent in the spray drying solution to yield spherical, light particles.

Conversely ,it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Cohan et al and Grimm and make a particle with the instant wall thickness since Cohan does not specify the wall thickness of the blown beads. One would have been motivated to do so since Grimm teaches the manipulation of the wall thickness provides effects the "burst" effect to the encapsulated material. Thus, a skilled artisan would have been motivated to manipulate the wall thickness depending on the desired release of the capsule contents. A skilled artisan would have expected similar results since both Cohan et al and Grimm are directed to encapsulating shells.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 24-25 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,565,885. Although

the conflicting claims are not identical, they are not patentably distinct from each other because:

Instant claim 24 is directed to a method for preparing microparticles with a wall thickness of about 110-500nm , wherein said method comprises spray-drying wall-forming materials and a bioactive agent, wherein said method further comprises inclusion of a blowing agent in the feedstock for spray drying.

Instant claim 25 is directed to the method according to claim 24, wherein said blowing agent is selected from the group consisting of ammonium acetate, ammonium carbonate, and acids.

Instant claim 26 is directed to the method according to claim 24, wherein said wall-forming is albumin.

US patent is directed to a method of forming a powder comprising microstructures by spray drying comprising the steps: providing a feed stock comprising a bioactive agent, surfactant, and a blowing agent wherein said blowing agent is selected from the group consisting of fluorinated compounds, nonfluorinated oils, ammonium salts, alcohols, chloroform, ethyl acetate, acetone, nitrogen, carbon dioxide, camphor, and latex wherein the ratio of blowing agent/surfactant is between 1.0-60 w/w; atomizing said feed stock to produce dispersed droplets; drying said droplets to form perforated microstructures comprising said bioactive agent and surfactant; and collecting said perforated microstructures. US claim 34 is directed to ammonium carbonate and camphor as the blowing agent. The method produces microparticles with the instantly claimed wall thickness. See Figure 1, which produces a microparticle with a wall thickness of 43.5 to 261 nm.

The instant application and US patent are directed to obvious and overlapping subject matter. Firstly, although the instant claims are directed to "microparticles" and US patent is directed to "perforated microstructures", these are considered obvious subject matter since the instant specification (page 25) discloses on that the blowing agent provides this perforated structure. Secondly, the instant specification discloses the use of surfactants as part material that forms the microstructures. Lastly, claim 25 is directed to ammonium carbonate or acetate as the blowing agent. Thus, the instant claims is directed to the broader scope without specifying the wall-forming material and blowing agent and US patent is directed to the narrower scope wherein the wall-forming agent is specified and the blowing agent.

Response to Arguments

Applicant request the rejection is held in abeyance until the claims are found to be allowable. The examiner maintains the rejection until a Terminal Disclaimer is filed to properly overcome the rejection.

The rejection of claim 24 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,207,135 (same assignee) is withdrawn in view of the amendment made 11/9/05.

Conclusion

All the claims are rejected at this time.

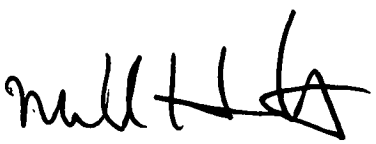
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharmila S. Gollamudi whose telephone number is 571-272-0614. The examiner can normally be reached on M-F (8:00-5:30), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on 571-272-0887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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